Core Requirements and Testing
(Part 1)
Status Report

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Contents

- Casting
- Closing polls (focus on early voting)
- Counting
- Reporting
- Conformance clause (focus on classes)
- Wrap-up

Casting

Volume III Section 4.6

Overview

- Ballot activation
- General voting functionality
- Voting variations
- Recording votes
- Redundant records
- Respecting limits

EBMs

- EBM = Electronically-assisted Ballot Marker
- EBP = Electronic Ballot Printer, a subclass of EBM
- All EBMs support DRE-like interaction with voter
- Only EBPs support ballot activation

Other changes

- Retain no half-finished ballots (IEEE)
- Redundant records are for recoverability
  - Distinguished from independent records for auditability; see VVSG'05 I.C
  - Made compatible with VVSG'05 I.C
- Prohibition on counter overflow clarified and generalized

Options not standardized

- Merged ballot approach to open primaries
- Recall candidacy linked to recall question

Closing polls

Volume III Section 4.7

Early voting

- State model in Volume III Section 5.2
- Suspension of voting is not the same as close of polls
- Reopening the polls and early reporting are prohibited
- Ballot accounting, other procedures

Counting

Volume III Section 4.8

Overview

- Voting variations
- Ballot separation and rejection
- Paper jams
- Accuracy
- Consolidation

Ballot separation and rejection

- EBMs may encode write-ins in machine-readable form
- Harmonized rejection behaviors
- Enhancements to rejection behaviors
  - Shall be capable of rejecting overvotes and blank ballots without rejecting undervotes
  - Blank on one side (should be capable)
  - Marginal marks (should be capable)
- Rejection rate on conforming ballots
- “Voter’s choice” issue

Optical scanners, MMPB (1/2)

- MMPB = Manually-marked paper ballot
- Reliably detectable marks and non-marks
  - Vendor's mark (shall detect as vote)
  - Standard mark (shall detect as vote)
  - No mark (shall detect as non-vote) – missing in draft, shall be added
- Marginal marks
  - Detection shall have no bias based on ballot position
  - Should be repeatable

Optical scanners, MMPB (2/2)

- "Ignore extraneous" made attainable (almost *)
  - Outside voting target (shall ignore)
  - Inside voting target, e.g. hesitation marks (should ignore)
- * To do: deal with obscured timing marks

Options not standardized

- Merged ballot approach to open primaries
- Recall candidacy linked to recall question
- Algorithms for counting scratch votes
- Algorithms for ranked order voting

Reporting

Volume III Section 4.9

Overview

- General reporting functionality
- Audit, status, and readiness reports
- Vote data reports
  - General functionality
  - Ballot counts
  - Vote totals

Major clarifications (Sept. 2005)

- Refactored requirements on vote data reporting
- Filled in missing details
  - Cast, read and counted
  - Reporting levels
- Logic model supplies precise definitions for overvotes and undervotes
- Every vote must be accounted for

What else is new

- Timestamp requirement
- Content of readiness reports
- Flag discrepancies (shall)
- Report blank ballots (should)
- Combined precincts (should)

Conformance clause

Volume III Chapter 2

Classes

Volume III Section 2.6

Origins

- 2002 VSS talks about “categories” of voting systems: paper-based, DRE, precinct count, central count
- Clarified in VVSG’05 conformance clause
- “Profiles” discussed at September 2005 TGDC meeting

The problem

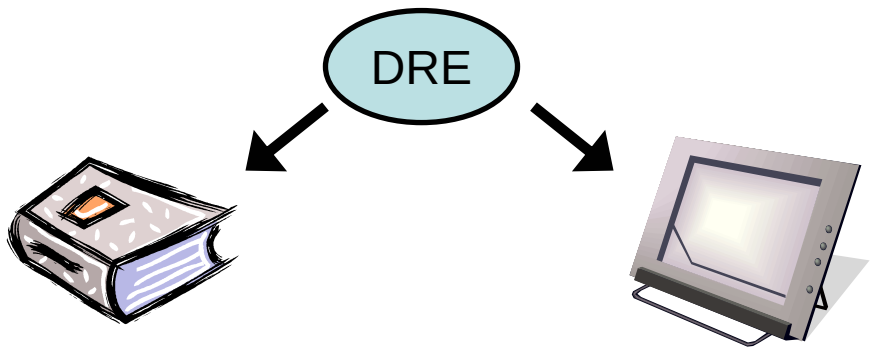
- There are DRE devices, there are paper-based devices, and there are voting systems that may or may not contain either or both
- VSS requirements language “paper-based systems shall” is unclear about scope
  - EBM devices shall?
  - Systems that include EBM devices shall?
  - Optical scan tabulators shall?
  - What do you mean, exactly?

The solution

- Define the terms (DRE, EBM, etc.)
- Define the relationships between specific classes and more general ones
- Define the relationships between the parts (devices) and the whole (system)
- Scope requirements precisely

A class identifies

- a set of requirements in the VVSG, and
- the voting systems or devices to which those requirements apply.



Typical use

4.7-1 DRE, no CVRs before close of polls

DREs shall prevent access to cast vote records until after the close of polls.

Applies to: *DRE*

D I S C U S S I O N

This does not apply to paper-based devices because the ballot is subject to handling beyond their control; however, a locked ballot box (per Requirement III.4.6-13.2 and Requirement III.3.1-10) serves the same purpose.

Precision is provided by

- the *Applies to:* field of requirements, which specifies the classes of systems or devices to which those requirements apply;
- the conformance clause, which specifies the relationships among classes; and
- the terminology standard, which defines terms such as “DRE.”

Uses of classes

- VVSG
- Implementation statement
- Conformity assessment
- Certification
- Declaration of conformity
- Request for proposals

Wrap-up

Unfinished business

- Requirements linking system and device levels
- Topics to be harmonized with STS and HFP
- Classification of optical scanners with respect to EBM-marked paper ballots vs. manually-marked paper ballots
- Shoulds that should be shalls
- Disposal of punchcard requirements

Future work

- Pre-voting requirements
- Standards on data to be provided
- Testing standard
- Terminology standard